

AMENDMENTS TO THE CLAIMS:

Claims 79-147 are canceled without prejudice or disclaimer. Claims 148-203 are added. The following is the status of the claims of the above-captioned application, as amended.

Claims 1-147 (Canceled)

E' Claim 148 (New). A modified cellulase having endoglucanase activity, comprising one or more substitutions in an amino acid sequence of a cellulase selected from the group consisting of:

- a substitution of the amino acid at position 4 with H, K, M, Q, R, V, or Y;
- a substitution of the amino acid at position 5 with S or T;
- a substitution of the amino acid at position 6 with T;
- a substitution of the amino acid at position 7 with I, K, L, R, or W;
- a substitution of the amino acid at position 8 with Y;
- a substitution of the amino acid at position 9 with W or Y;
- a substitution of the amino acid at position 10 with D;
- a substitution of the amino acid at position 12 with G or M;
- a substitution of the amino acid at position 13 with K, L, or Q;
- a substitution of the amino acid at position 14 with A, P, or T;
- a substitution of the amino acid at position 15 with H, S, or T;
- a substitution of the amino acid at position 16 with A, C, or M;
- a substitution of the amino acid at position 18 with F or Y;
- a substitution of the amino acid at position 19 with A, D, E, G, P, S, or T;
- a substitution of the amino acid at position 20 with A, E, G, or K;
- a substitution of the amino acid at position 21 with K or N;
- a substitution of the amino acid at position 21a with V;
- a substitution of the amino acid at position 42 with D, G, K, N, S, T, W, or Y;
- a substitution of the amino acid at position 44 with G, K, P, Q, or V;
- a substitution of the amino acid at position 45 with S or T;
- a substitution of the amino acid at position 47 with C, G, M, or Q;
- a substitution of the amino acid at position 48 with E, N, or S;
- a substitution of the amino acid at position 49 with A, G, P, or S;
- a substitution of the amino acid at position 49a with C;
- a substitution of the amino acid at position 49b with N;

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a substitution of the amino acid at position 74 with A or F;
a substitution of the amino acid at position 82 with E;
a substitution of the amino acid at position 95j with P;
a substitution of the amino acid at position 110 with S;
a substitution of the amino acid at position 111 with I, T, or V;
a substitution of the amino acid at position 113 with G or Y;
a substitution of the amino acid at position 114 with N;
a substitution of the amino acid at position 115 with L;
a substitution of the amino acid at position 116 with S;
a substitution of the amino acid at position 119 with D, F, H, N, or R;
a substitution of the amino acid at position 121 with D;
a substitution of the amino acid at position 123 with A, M, or Q;
a substitution of the amino acid at position 129 with L or V;
a substitution of the amino acid at position 131 with A or I;
a substitution of the amino acid at position 132 with A, D, P, or T;
a substitution of the amino acid at position 133 with D, K, or N;
a substitution of the amino acid at position 145 with A, D, N, or Q;
a substitution of the amino acid at position 146 with R;
a substitution of the amino acid at position 147 with C, G, K, R, V, or W;
a substitution of the amino acid at position 150b with A;
a substitution of the amino acid at position 178 with D, N, or P; or
a substitution of the amino acid at position 179 with N or V;

wherein the cellulase has an amino acid sequence of any of SEQ ID NOS: 1-11 and each position is numbered according to the amino acid sequence of the cellulase of SEQ ID NO: 1.

Claim 149 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 4 with H, K, M, Q, R, V, or Y.

Claim 150 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 5 with S or T.

Claim 151 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 6 with T.

Claim 152 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 7 with I, K, L, R, or W.

Claim 153 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 8 with Y.

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Claim 154 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 9 with W or Y.

Claim 155 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 10 with D.

Claim 156 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 12 with G or M.

Claim 157 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 13 with K, L, or Q.

Claim 158 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 14 with A, P, or T.

Claim 159 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 15 with H, S, or T.

Claim 160 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 16 with A, C, or M.

Claim 161 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 18 with F or Y.

Claim 162 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 19 with A, D, E, G, P, S, or T.

Claim 163 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 20 with A, E, G, or K.

Claim 164 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 21 with K or N.

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cont. Claim 165 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 21a with V.

Claim 166 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 42 with D, G, K, N, S, T, W, or Y.

Claim 167 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 44 with G, K, P, Q, or V.

Claim 168 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 45 with S or T.

Claim 169 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 47 with C, G, M, or Q.

Claim 170 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 48 with E, N, or S.

Claim 171 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 49 with A, G, P, or S.

Claim 172 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 49a with C.

Claim 173 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 49b with N.

Claim 174 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 74 with A or F.

Claim 175 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 82 with E.

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Claim 176 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 95j with P.

Claim 177 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 110 with S.

Claim 178 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 111 with I, T, or V.

Claim 179 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 113 with G or Y.

Claim 180 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 114 with N.

Claim 181 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 115 with L.

Claim 182 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 116 with S.

Claim 183 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 119 with D, F, H, N, or R.

Claim 184 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 121 with D.

Claim 185 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 123 with A, M, or Q.

Claim 186 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 129 with L or V.

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Claim 187 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 131 with A or I.

Claim 188 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 132 with A, D, P, or T.

Claim 189 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 133 with D, K, or N.

Claim 190 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 145 with A, D, N, or Q.

Claim 191 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 146 with R.

Claim 192 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 147 with C, G, K, R, V, or W.

Claim 193 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 150b with A.

Claim 194 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 178 with D, N, or P.

Claim 195 (New). The modified cellulase of claim 148, comprising a substitution of the amino acid at position 179 with N or V.

Claim 196 (New). The modified cellulase of claim 148, comprising

~~R4H+A63R+N65R+D67R,~~

R4H+R158E+D161P+A162P,

R4H+D161P+A162P+R196E,

Y8F+W62E+A162P,

Y8F+W62E+R252L+Y280F,

C16M+C86G,

E48D+P49*, or

E48N+P49*.

Claim 197 (New). The modified cellulase of claim 148, comprising Q119H.

Claim 198 (New). The modified cellulase of claim 148, consisting of Q119H.

Claim 199 (New). The modified cellulase of claim 148, wherein the cellulase has an amino acid sequence of SEQ ID NO: 1.

Claim 200 (New). The modified cellulase of claim 148, wherein the cellulase has an amino acid sequence of SEQ ID NO: 5.

Claim 201 (New). The modified cellulase of claim 148, wherein the cellulase has an amino acid sequence of SEQ ID NO: 10.

Claim 202 (New). The modified cellulase of claim 197, wherein the cellulase has an amino acid sequence of SEQ ID NO: 5.

Claim 203 (New). The modified cellulase of claim 198, wherein the cellulase has an amino acid sequence of SEQ ID NO: 5.